A Qualitative Study of the Health Concerns of Postmenopausal Women:

A Secondary Data Analysis

Thesis

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Stacey Klenk

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Examination Committee:

Terri Bruckner, MA, RT(R)(CV), Advisor

Dr. Kevin D. Evans, PhD, RT(R)(M)(BD), RDMS, RVS, FSDMS

Dr. Maryanna Klatt, PhD

Dr. Margaret H. Teaford, PhD

Approved by

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Division of Radiologic Sciences and Therapy

Abstract

Objective: To better understand the health concerns of postmenopausal women, with a focus on osteoporosis.

Method: A qualitative document review of transcripts of eight postmenopausal women to guide data collection and qualitative data analysis.

Results: The women in this study were found to be active participants in their health care with a need for support throughout the process. Osteoporosis was not discussed specifically in-depth by the eight women, but was spoken of as it is a major health risk for postmenopausal women. Two women were found or alluded to being diagnosed with osteoporosis with one using traditional treatment and five women who sought out forms of exercise. Two women actively used yoga in their prevention and three used walking for bone health. The women had a desire for the best health care with support of others in prevention and treatment.

Conclusions: A walking class or group exercise class such as yoga could provide the women with low impact weight bearing exercise and expand their sisterhood of support through participation with other woman in the community. The use of exercise through a walking class or group exercise such as yoga can provide benefits physically, socially, psychologically and emotionally for the postmenopausal women who desire a full, active life.

Vita

November 26, 1986 date born……Born in Bridgeport, Connecticut

June 2005……...Turpin High School

June 2010……...B.S. Radiologic Sciences

…….Minor in Integrative Approaches to Health and Wellness

…….……The Ohio State University

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Chapter 1

Problem statement:

Osteoporosis is a disease of pandemic proportion with a potential to affect any member of the population, currently women in their postmenopausal are the population most affected (Ray, 1997). Osteoporosis has long-term psychological and social consequences which impact patients' lives. Treatment of osteoporosis typically falls into the realm of traditional medications, although there are many other possibilities available. Currently complementary and alternative treatments are being explored as options for integration with the more commonly used traditional medications. Osteoporosis is a complicated disease that should be treated holistically, looking at the patient as a whole instead of just the disease.

Osteoporosis is recognized as an important public health concern because of significant morbidity and mortality associated with resulting complications, mainly being fractures. Osteoporosis is estimated to occur in 44 million Americans, 80% being women (Lewiecki, 2008; Nat Osteo, 2008). Additionally 34 million people were found to have low bone mass and an increased risk of developing osteoporosis (Sherman, 2009). In 2005 alone, 2 million new osteoporotic fractures occurred in the United States (Lewiecki, 2008). In 1999, osteoporotic fractures lead to 432,000 hospitalizations, 2.5 million physician visits and 180,000 nursing home admissions with a direct cost estimated at 12.8 billion dollars (Feldstein, 2005).

Epidemiologically, elderly Caucasian women have the highest incidence of osteoporotic fracture with 55% of the osteoporotic population being age 50 and above (Ray, 1997; Nat Osteo, 2008). At age 50, a Caucasian woman's lifetime risk for a hip fracture associated with osteoporosis is 16% with an associated mortality rate of 20% occurring within the first year

following a fracture (Feldstein, 2003). One third of Caucasian women age 65 and older have been diagnosed to have osteoporosis with 20% of Caucasian women over 50 having osteoporosis of the hip and 16% of the vertebral bodies (Lane, 1999). Additionally, Caucasian women over the age of 65 have two times the incidence of fractures compared to those of the same age but of African American descent along with a six fold increase in vertebral body fractures from menopause to age 65 (Nat Osteo, 2008; Lane, 1999). At the age of 80 it is estimated that 27% of women are considered osteopenic and 70% osteoporotic (Cramer, 2007). Women over the age of 80 account for 8% of the postmenopausal population contributing to more than 30% of fragility fractures and 60% of hip fractures (Seeman, 2006).

Osteoporosis occurs with a total bone mass less than the standard for a specific age group and gender (Tamparo, 2000). Bone becomes brittle, porous and vulnerable to fracture as bone composition deteriorates.

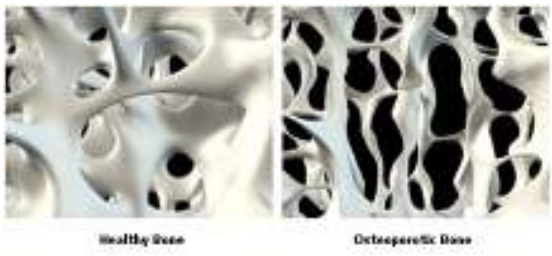

Figure 1.1 Bone Matrix

Bone materializes in two forms, cortical or cancellous. Eighty percent of bone mass consists of cortical bone composed of closely packed series of structures termed osteons (Berger, 2000). Osteons are arranged in a manner such that they effectively resist bending forces. Cortical bone is primarily located where remodeling is initiated on the external periosteum or internal endosteum surfaces of bone. Despite the fact that cortical bone is 80% of bone mass, it accounts

for only 20% of the surface area (Lindsay, 1994). The smaller surface area and lower surface volume ratio of cortical bone contributes to less remodeling activity in cortical bone compared to that of cancellous bone. Cancellous bone forms the internal structure of metaphysic long bones and vertebral bodies. It is an intricate network of trabeculae interconnected in a honeycomb arrangement to resist compressive stress (Lindsay, 1994). Cancellous bone is 20% of bone mass, 80% of total surface area, and has an 80% increase in metabolic turnover rate compared to cortical bone; thus is affected to a greater degree by osteoporosis (Betz, 2005). The increase in metabolic activity of cancellous bone results in a higher rate of remodeling and preventative maintenance leading cancellous bone to be the main site of bone resorption and synthesis. In postmenopausal women with established osteoporosis, a deficit of both cortical and cancellous bone is characteristic with a cancellous bone deficit resulting in a net loss of all trabecular elements. Direct measurements of trabeculae within the architecture of cancellous bone provide evidence to confirm that women with established osteoporosis have a decrease in the metabolically active trabeculae with an unchanged cancellous bone volume compared to healthy women of the same age (Barger-Lux, 2002).

Anatomically, osteoporosis impinges upon matrix formation of bone tissue. Bone is constantly remodeling and reforming with the aid of osteoclasts and osteoblasts. These remodeling units continuously interchange activation in an attempt to sustain equilibrium between bone resorption and formation for optimum bone mass values. Resorption of bone followed by synthesis occurs throughout life span in an attempt to replace brittle, porous bone with new bone. Multinucleated giant cells of a macrophage lineage termed osteoclasts are recruited to the surface of bone by the process activation; then aided by intracellular lysosomal enzymes osteoclasts resorb collagen and the markers of collagen resorption; urinary

hydroxproline and pyridinoline crosslinks. This osteoclastic action results in the creation of a resorption cavity or Lacunae of Howship in the cancellous bone (Lindsay, 1994). The initial phase of bone resorption occurs for weeks followed by a period of apparent inactivity at each specific site of resorption (Berger, 2000). Throughout this period of inactivity during the reversal phase the osteoclasts extract,then replaced by monocytic cells that lay down a strong lining of cancellous bone. On bone surface during the second phase of bone resorption, synthesizing of new bone matrix via osteoblasts begins, remodeling the broken down bone into new, stronger bone. The osteoblasts attach to the surface of each lacunae of Howship where they secrete then synthesize collagen and other noncollagenous proteins to form an osteoid. Once matured, each osteoid aided by the proteins osteocalcin and alkaline phosphatase (proteins that serve as the markers of bone formation) converts the non-mineralized matrix into a matrix of hydroxyapatite over a period of one to two weeks as an attempt for optimal bone mass (Berger, 2000).

As women become estrogen deficient in their postmenopausal year's, decreases in remodeling and bone formation occur. Osteoporosis alters the action in which bone is removed and synthesized causing a decrease in bone mass along with a permanent deficit; only to be repaired when remodeling begins (Betz, 2005). With an increased frequency of new remodeling sites activated, an increase in the volume of bone being remodeled occurs resulting in a net reduction of skeletal mass equating to as much as 5% of cancellous bone (Lindsay, 1994). In the formation of bone, the highest density peaks between ages 20-25 and throughout a life span thereafter bone deteriorates (Nguyen, 2004). After age 25, there is an increased rate of bone turnover in which the rate of resorption is greater than the rate of bone formation resulting in net bone loss (Nguyen, 2004). Following menopause, the rate of bone turnover increases and the amount of bone reabsorbed on average exceeds the amount of new bone formed. In addition,

high turnover states are typically associated with rapid loss of trabecular connectivity with a temporary weakening of trabeculae as a result of an increased numbers of resorption cavities on trabecular bone surfaces (Adami, 1993). This consequential decrease in density of bone matrix is the process that leads to the diagnosis of osteoporosis.

There are many risks for osteoporosis ranging from a thin, small body build to a family history of this disease. Insufficient bone mass at the time of skeletal maturity and rapid loss of bone after menopause are the most important factor predisposing a person to osteoporosis (Sherman, 2009). An increase in age is a major risk factor with other common risk factors including a personal history of fracture and instability, lifestyle, hormonal imbalances, medications and illnesses (Nguyen, 2004). Lifestyle risk include inadequate calcium and vitamin D intake, high caffeine consumption, smoking, consuming more than two alcoholic beverages a day and not regularly exercising (Lane, 1999; Diez, 2002; Taylor, 2005). Hormonal imbalances consist of circumstances such as early menopause, anorexia, vitamin D deficiency syndromes, low body weight, genetic disorders, endocrine disorders, autoimmune disorders, hematologic disorders, and hyperthyroidism. Both low body weight (BMI <20) and weight loss (over 10% of body mass) have been linked to a significant increase in risk for osteoporosis (Sherman, 2009). Other disorders leading to a predisposition for osteoporosis are postural deformities such as scoliosis and kyphosis, irregular menstrual cycles, amenorrhea, congestive heart failure, depression, emphysema, end stage renal disease, epilepsy, multiple sclerosis, neurological impairment and lactose intolerance (Taylor, 2005; Betz, 2005). Illnesses predisposing a person to osteoporosis include malabsorption disorders, intestinal diseases, rheumatoid arthritis, and those on prolonged bed rest. People on bed rest lose approximately one percent of their bone mineral density per week (Betz, 2005). Medications considered as risk factors for osteoporosis are oral

corticosteroids, seizure medications, prolonged heparin use, and diuretics (Nat Osteo, 2008; Dawson-Hughes, 2008). Women are at increased risk for osteoporosis with reasons including a lower bone mass at time of maturity, accelerated loss of bone after menopause and a greater likelihood of falls amongst elderly women (Kanis, 1994). Bone deterioration can lead to osteoporosis and fractures with bone loss in women occurs most commonly after menopause, when the rate of loss may be as high as 2% per year (Lane, 1999). Women can lose up to 20% of their bone mass in the 5-7 years after menopause, making them most susceptible to osteoporosis (Nat Osteo, 2008). Hormone loss during menopause causes changes within the micro-architectural structure of the bone, also contributing to bone loss and an increased rate of bone turnover. High turnover is associated with increased loss of trabecular connectivity and weakening of trabecular bone (Adami, 1993). The National Osteoporosis Foundation recommends all women over the age of 65 regardless of risk factors have their bone mineral density tested (Mauck, 2006).

There are several modalities used to aid in the diagnosis of osteoporosis. The diagnostic tool most commonly used today to measure bone mineral density is dual energy x-ray absorptiometry (DXA) (Moore, 2006). Other modalities used in the diagnosis of osteoporosis are single x-ray absorptiometry, calscan, quantitative ultrasound (qUS) and quantitative computed tomography (qCT) (Clowes, 2005; Lewiecki, 2008). Dual energy x-ray absorptiometry (DXA) is considered the most accurate method of measuring bone mineral density and is currently the best available predictor of fracture risk using ionizing radiation photon beams of two different energy levels (Lewiecki, 2008). Bone mineral density and strength are strongly correlated to the use of DXA scan with sensitivity and specificity being good, radiation dosage low and ability to detect change in individuals monitored over time (Lewiecki, 2008). Radiation risk is minimal with

doses less than a few millisievert; less than 1% of the dose received during an AP radiograph of the lumbar spine (Berger, 2000). DXA measurements are taken at the spine, hip and wrist as these are the sites most commonly fractured (Berger, 2000). DXA measures bone mineral content in grams and bone area in square centimeters, with a computation to determine areal bone mineral density as grams per square centimeter (Lewiecki 2008). Bone mineral density (BMD) measures the amount of bone tissue in a measured volume of space, can be used to establish or confirm the diagnosis of osteoporosis, predict future fracture risk, and monitor changes in BMD conditions (Taylor, 2005). Bone mineral density is a continuous, graded, inversely proportional relationship to fracture risk; the lower the bone density, the greater the risk.

The results of a DXA scan quantify a patient's bone mineral density and are presented as T and Z scores. T scores compare the BMD of a subject to the average twenty five year old of the same sex and ethnicity. Z scores compare the subject's BMD to the average of his/her peers. The World Health Organization defined bone mass using T scores and has characterized it as follows: A normal T score is greater than -1, osteopenia -1 to -2.5 and osteoporosis less than -2.5. Severe or established osteoporosis is a T score less than -2.5 and the presence of fractures (Moore, 2006). Z scores represent the number of standard deviations from the normal mean value for age and sex matched control subjects. A Z score of -1.0 or lower may suggest presence of a secondary cause of osteoporosis. A Z score of -2.0 or lower is below expected range for that age and a Z score above -2.0 is within the expected range for that age (Mauck, 2006). Z scores are usually used to assess bone loss in premenopausal females and men younger than 50. These measurements are guidelines doctors use in the diagnosis of osteoporosis with T scores used more often in the diagnosis of osteoporosis (Appendix A Table 1.1).

Osteoporosis is a disease currently managed with a wide range of therapies that decrease bone resorption, increase bone formation or result in a combination of the both. Postmenopausal osteoporosis has long term physical, psychological and social consequences with major impacts on a patient's daily life. Treatment for a disease such as osteoporosis needs to be clinically effective, well tolerated, and beneficial to the patient's entire quality of life (Delmas, 2005). Traditional treatments available today include bisphosphonates and estrogen therapy; if taken correctly, traditional medications have been shown in some instances to increase bone mineral density. Even though traditional medications may at times provide positive results concerning bone mineral density, many women experience negative effects leading to decreased desire for treatment.

Patient refusal of these traditional therapies is common as many patients have difficulty following treatment. In one study of women treated with bisphosphonates, the results found it challenging to maintain full compliance during long term treatment; approximately 35% of patients discontinued therapy by 6 months and up to 50% of patients discontinued by the end of the first year of treatment (Sheehy, 2008). In a second study, results found bisphosphonates to be successful only when taken for at least one year (Papaioannou, 2003). In a one year follow up of this study, 80.1% of the patients were compliant but after six years decreased to 44.5%. In related literature, adherence to the treatment regimen was seen as low as 8% with some of patients and as high as 70% with others (Papaioannou, 2003). With strict guidelines for intake causing problems for patients linked to reflux and the gastrointestinal system, the negative aspects of these traditional therapies provide insight into why patients remain hesitant in the use of traditional treatments of osteoporosis. These results provide good reasoning for a look into the use of complementary and alternative therapies in the treatment of osteoporosis.

Many alternative medical treatments are being tested and used for the treatment of osteoporosis with a focus on Tai Chi, Yoga, and Pilates. Osteoporosis is a treatable and preventable disease and through the use of complementary and alternative therapies (CAM) a reduction in the constantly growing number of postmenopausal women with osteoporosis and low bone density can occur (Moore, 2006). The U.S. Surgeon General recommends a "pyramid" approach to the prevention and treatment of osteoporosis, including a foundation of lifestyle changes that include nutrition, physical activity and fall prevention (Lewiecki, 2008). The use of complementary and alternative medicine in the treatment and prevention of osteoporosis provides an opportunity for insight into the lived experience through each woman's treatment of osteoporosis, as many of these options are lifestyle modifications. Complementary and alternative medicine provides many avenues of treatments for osteoporosis outside the realm of traditional treatment. Investigating the lived experience of eight postmenopausal women can give insight into opinions and interactions with their personal health care and treatment. Using a narrative approach may help provide reasoning behind their choices and use of CAM instead of, or in conjunction with, traditional medicine for the treatment of osteoporosis.

Review of Literature

When looking into strategies for the prevention and treatment of osteoporosis, many researchers have established that osteoporosis is a complicated disease (Lewiecki, 2008; Diez, 2002; Sheehy, 2008). The largest study of postmenopausal osteoporosis conducted in the United States was the cohort study NORA (Siris, 2001) where 200,160 women had results finding half of the women had low bone mineral density and 7% who had osteoporosis. The large diverse population aided in confirmation of the importance of risk factors, treatment, prevention and low bone mineral density and provided insight into links between low body weight, maternal history

of osteoporosis or related fracture, personal history of fracture, cigarette smoking, lack of exercise, use of glucocorticoid medications and nonuse of estrogen with low bone mineral density as seen in smaller previous studies (Siris, 2001). The current recommendations from the National Osteoporosis Foundation state treatment is advised for patients with a fracture where it is cost effective with benefits outweighing the risks associated with treatment (Dawson-Hughes, 2008). Most studies look into the use of treatments compared to a control group, but few studies look into the differences between the uses of traditional versus complementary and alternative treatments (Cauley, 2003; Ettinger, 1999; Bishoff-Ferrari, 2005). In the search for the ideal treatment for osteoporosis, each study conducted must weigh the options of risk versus benefit.

Traditional osteoporosis therapies include estrogen and bisphosphonates medications. Doctors suggest the use of these medications because they have been more thoroughly researched and consequentially validated (Sherman, 2009). The most commonly used estrogen therapy was Raloxifene hydrochloride and the four most commonly used bisphosphonates are Alendronate, Risendronate, Ibandronate and Zoledronate (Lewiecki, 2008). For years estrogen was the front line treatment for osteoporosis, but is not commonly used today with the risks of treatment exceeding the benefits (Lewiecki, 2008). Estrogen, an antiresorptive agent, increases bone mineral density, improves bone strength and reduces fracture risk through reducing bone turnover and conversely filling the lacunae of Howship (Lewiecki, 2008). The Women's Health Initiative found estrogen therapy reduced the risk for hip, vertebral, and other fractures in a group of healthy postmenopausal women with a mean age of 63.5 (Lewiecki, 2008). Estrogen is not recommended as a primary therapy for managing osteoporosis and is used only in women with significant risks for fracture who are unable to take nonestrogen medications (Lewiecki,

2008). Serious adverse effects include those involving thromboembolic events and breast cancer (Sherman, 2009; Kanis, 1994).

In a study of estrogen, the use of Raloxifene Hydrochloride, a nonsteroidal benzothiophene that binds to estrogen receptors inhibiting bone resorption, was tested in postmenopausal women (Ettinger, 1999). The risk for vertebral fracture decreased 30-50% among women treated, with a 2-3% increase in spine and hip bone mineral density after 2-3 years compared with those that were in the control group. After 36 months, 24.2% of women had serious adverse effects including venous thromboembolic events such as deep vein thrombophlebitis and pulmonary embolism, breast cancer, vaginal bleeding, breast pain, and hot flashes related to Raloxifene treatment (Ettinger, 1999). In 2001, 16,608 postmenopausal women between the ages of 50 and 79 participated in a study to test the effects of estrogen plus progestin on fracture risk and bone mineral density (Cauley, 2003). It was found that estrogen plus progestin increased bone mineral density and reduced the risk of fracture in healthy postmenopausal women but the trial was stopped early because of safety concerns. After five years, the women taking the estrogen plus progestin were being diagnosed with breast cancer more often in those in the control group (Cauley, 2003).

Given that estrogen therapy is not commonly used today, another form of treatment was needed. Bisphosphonates have been in clinical practice for over twenty years with the use of Etidronate for Paget's disease in 1974 (Miller, 2003). Bisphosphonates are the most widely prescribed antiresorptive agent in the treatment of osteoporosis (Rosen, 2005). The medications suppress resorption by stopping the attachment of osteoclasts into the matrix of the bone. During normal bone remodeling, osteoblastic bone formation follows resorption and occurs within the eroded cavities, inhibiting bone resorption and resulting in inhibition of bone formation (Ott,

2005). The bisphosphonates increase bone strength by preventing trabecular plate perforation and improving bone mineralization. Bisphosphonates are prescribed based upon T score and age but, if a patient is 75 or older, they can be prescribed a bisphosphonate without the need of a DXA scan (Warburton, 2008). If patient is between the ages of 65-74, bisphosphonates can be prescribed when osteoporosis is confirmed through a DXA scan. If under the age of 65 with a T score -3SD or below, a confirmed diagnosis of osteoporosis or a maternal history of osteoporosis then bisphosphonates are prescribed (Warburton, 2008). The first bisphosphonate available in the United States was Alendronate in 1995, followed by Risendronate in 2000 (Iwamoto, 2003). Alendronate and Risendronate were found to increase the lumbar and femoral neck bone mineral densities, with Etidronate increasing only lumbar bone mineral density in patients with osteoporosis that presented with new vertebral and femoral neck fractures (Iwamoto, 2003).

The bioavailability and tolerance of oral bisphosphonate therapy is highly dependent on correct administration procedures. The medications must be taken with a glass of plain water on an empty stomach after an overnight fast, with no food, drink, medications, or supplements to follow dosing for an hour remaining upright until the fast is broken (Lewiecki, 2008). Reclining too soon after taking the medication may result in esophageal irritation in patients who have gastroesophageal reflux (Lewiecki, 2008). The most common side effects involve the upper GI tract with mostly mild, although sometimes severe esophageal ulcerations, perforations, dyspepsia, esophagitis, diarrhea, bone pain and bleeding of the esophagus have been reported (Lane, 1999; Sherman, 2009). The U.S. Surgeon General recognized poor adherence and suggests less frequent doses to improve adherence and enhance the therapeutic effect (Nat Osteo, 2008). Observational studies have demonstrated that adherence with oral bisphosphonates was poor mainly due to adverse events, inconvenient strict dosing regimens, high cost and the

asymptomatic nature of osteoporosis (Sheehy, 2008; Cramer, 2007). In a systematic review of compliance to the use of bisphosphonates for treatment of osteoporosis, there was a documented compliance rating from 17.9% to 78% of patients (Cramer, 2007). Such a large range of compliance is related mainly to the dosing regimens; if the patients were required to take the bisphosphonates daily, weekly or monthly (Cramer, 2007). In a study conducted in 2006, 2124 women, between the ages of 55 and 74 were observed taking bisphosphonates for osteoporosis (Penning-van Beest, 2006). 80% of the women preferred to take bisphosphonates once weekly as compared to daily administration from negative gastric side effects (Penning-van Beest, 2006). Overall, most studies found low patient compliance to treatment and the efficacy of bisphosphonates relying on an increase in compliance for results (Cramer, 2007).

There is strong evidence that physical activity, good nutrition and pharmacotherapy are effective in the prevention and treatment of osteoporosis with weight bearing exercise critical to maintenance of bone mass and closely correlated to muscle mass (Moore, 2006; Lane, 1999). Individuals diagnosed with osteoporosis have an increased risk of fracture intensified due to an increase in bone fragility. Approximately 50% of patients who have hip fractures never walking again without assistance, 25% will require long term care and mortality five years after fracture approximately 20% greater than expected (Greig, 2005; Lewiecki, 2008). Osteoporosis has importance in public health and clinically because osteoporotic fractures are one of the most common causes of disability with woman having six fold increase in vertebral fractures from menopause to age 65 (Lane, 1999; Penning-van Beest, 2006). As low bone mass is a major risk factor for fracture, the treatment of osteoporosis is focusing more on prevention of bone loss and increasing bone mass (Penning-van Beest, 2006).

Strategies used in complementary and alternative treatments for osteoporosis are strongly tied to exercise with the three most commonly used being Tai Chi, Yoga and Pilates (Lewiecki, 2008; Nat Inst., 2005). Evidence suggests that lifestyle is a major contributor to osteoporosis and Americans do not engage in enough physical activity or consume enough nutrients to support good bone health (Betz, 2005). Weight bearing exercises are associated with improvement in the bone mineral density of postmenopausal women (Lewiecki, 2008). The U.S. Surgeon General recommends a "minimum of 30 minutes of physical activity on most, if not all days of the week" (Lewiecki, 2008). Prolonged inactivity increases weakness and causes loss of muscle mass and strength. A regular exercise program can help regain strength and energy, relieve tension, increase flexibility, strengthen muscles and reduce fatigue (Nat Inst., 2005).

Exercise changes the internal strain on bone and appears to activate osteocytes which alter the balance between bone resorption and formation (Prior, 1996). Weight bearing exercise stimulates osteoblasts into formation of bone increasing bone mass in a relation between strength and bone mineral density site specifically (Lin, 2008; Prior, 1996). Bone mass is closely correlated with muscle mass guiding many program designs to develop increased muscle strength translating into increased bone mass (Lane, 1999). Regular exercise programs such as those used in complementary and alternative medicine are beneficial for patients with osteoporosis decreasing the fear of falling, increasing self confidence with increased exercise and increased bone mass for a more active lifestyle (Prior, 1996). In a recent Cochrane meta-analysis, results showed muscle strengthening, balance training and the use of multidisciplinary programs to assess risk factors protected against falls (Rosen, 2005). In a prospective study of 9515 osteoporotic women over the age of 65, 50% of the women walked for exercise with 90% on their feet more than four hours a day (Prior, 1996). 192 initial hip fractures were analyzed

finding those who walked for exercise had a 30% reduction in relative risk for fracture and a 70% increase risk for those who did not stand for at least 4 hours a day leading to a conclusion finding nonstrenuous exercises such as Tai Chi, Yoga and Pilates can prevent falls and hip fractures (Prior, 1996).

The most common complementary and alternative treatment for osteoporosis is Tai Chi, a meditative, mind body exercise recognized as a preventative and rehabilitative therapeutic tool (Wayne, 2007). Over the past century, millions have practiced Tai Chi's flowing and meditative movements to maintain health and well being. Tai Chi helps with neuromuscular coordination, rheumatoid arthritis, osteoarthritis, dementia, stress management, cardio, respiratory and immunoendocrine systems to aid in fall prevention, increase muscular strength and increase flexibility related to a decreased risk for osteoporosis (Wayne, 2007; Lane, 1999). Tai Chi includes constant shifting of weight from one leg to another to facilitate improved strength and balance, an emphasis on posture for balance and stability, a continuous flow to allow sensory awareness, symmetrical movement for gait stability, knee flexion for finding one's center of gravity and flowing circular movement for joint flexibility (Wayne, 2007). Wayne et al. conducted a systematic review of the use of Tai Chi and its effects on bone mineral density in postmenopausal women over a 12 month period and found there were a 3 fold increase in trabecular and a 2 fold increase in cortical reduction of bone mineral density loss (Wayne, 2007).

In 1993, Wolf et al. conducted a meta-analysis termed FICSIT (Frailty and Injuries: Cooperative Studies of Intervention Techniques) where 2,300 women over the age of 65 were randomly assigned to formal exercise programs (Wolf, 1993). A 17% reduction in risk for falls occurred when the exercise program included an activity (such as Tai Chi) that aimed in improving balance. In a smaller study of 200 women from the FICSIT trial, 72 of the women

were assigned to Tai Chi and they decreased their risk of falling by almost 40% (Wolf, 1993). The U.S. Surgeon General specifically recommends Tai Chi as a good exercise for osteoporosis with its aid in fall prevention, safety and effective results for bone density maintenance (Wayne, 2007). A randomized controlled trial of 256 postmenopausal women ages 70-92 was conducted where with the women placed into two groups; those that participated in Tai Chi and those who participated solely in stretching (Li, 2005). Tai Chi classes were given three times a week for a 6 month finding of those who participated in Tai Chi had a 55% decreased risk for fractures compared to the stretching group. The Tai Chi participants showed significant improvements in functional balance, physical performance and reduced fear of falling (Li, 2005). In a second randomized control trial, 90 men and 90 women were randomly placed into three groups; Tai Chi, weight resistance and no exercise (Woo, 2007). Tai Chi was found to be a suitable exercise intervention with a 7% increase in bone mineral density at the hip and 10% increase at the spine of elderly women and suggested for use to improve bone mineral density, strengthen balance and increase flexibility (Woo, 2007).

Other commonly used complementary and alternative treatments for osteoporosis are Yoga and Pilates. Yoga incorporates proper alignment, movement, breathing techniques and guided meditation which generates quality bone development at all stages of life (Taylor, 2005; Crews, 2005). Benefits of regular yogic practice includes decreased blood pressure and pain; and increased respiratory efficiency, flexibility, range of motion, posture, strength, immune function, balance and coordination (Crews, 2005). Pilates combines low impact, weight bearing exercise with resistance training promoting posture, flexibility, core strength and offers neuromuscular re-education by improving balance, decreasing osteoporotic patients' vulnerability to falls and consequential fractures (Horowitz, 2004; Taylor, 2005). A Pilates program can increase bone

density in the spine and hips by emphasizing correct biomechanics and posture through specific thoracic extension exercises. (Horowitz, 2004) The belief behind Pilates is core controlled body movement with the goal to achieve efficient and enhanced daily movement (Anderson, 2005). Both forms of complementary and alternative treatment incorporate aspects of exercise found to provide positive benefits for bone formation. In a longitudinal randomized controlled study of 50 healthy postmenopausal women ages 48-65, the use of exercise in the form of Tai Chi, Yoga and Pilates had a positive impact on vertebral fractures (Sinaki, 2002). The study found postmenopausal women who built muscle mass ten years previously showed benefits of slowing bone loss, increasing bone mass and reduced fall risk with 1.6% of the women who participated in the exercise groups and 4.3% of those in the non-exercise group reporting vertebral fractures. Despite an increased number of health care practitioners using Pilates and Yogic approaches, there is still a lack of supportive literature examining their relation to osteoporosis and other low bone mineral density disorders (Anderson, 2005).

Although Tai Chi, Yoga and Pilates have not been comprehensively evaluated, the studies provided insight into positive results through complementary and alternative treatments for osteoporosis. There is a lack of research that looked into the use of traditional versus complementary and alternative treatments for postmenopausal osteoporotic women with an emphasis on patient participation in their health care. This disease is one that affects the entire life of the patient. Traditional medications have been effective in the treatment of osteoporosis, but compliance is low as negative side effects are common. Apart from the well known direct physical consequences, osteoporosis also has long term psychological and social consequences, with an important impact to be made on each osteoporotic patient's life (Delmas, 2005). Many women who suffer from vertebral fractures have psychological concerns such as loss of self-

esteem and depression linked to an impaired body image (Delmas, 2005). Reducing the range of possible activities and increasing fear of dependence links to serious impacts on each patient's emotional state. Complementary and alternative treatments provide an avenue for each patient to choose exercise instead of medicinal options to aid in bone formation. A qualitative look at osteoporosis and its effects in postmenopausal women will provide insight into the lived experience of the women, reasons for a move from traditional to complementary and alternative treatments along with the benefits of complementary and alternative treatments compared to traditional treatment.

Objectives

1. To obtain a qualitative analysis to determine themes related to each woman's overall health care, concerns, preventative choices, and lived experiences using transcripts regarding breast self examinations from eight postmenopausal women ages 75-91.
2. To report if any of the women state or allude to being diagnosed with osteoporosis.
3. To examine if any of the women were involved in complementary and alternative therapies for osteoporosis or other health issues.
4. To examine the attitudes of each woman toward current health care and treatments in those reporting with osteoporosis.
5. To compare the lived experiences of 8 postmenopausal women related to any positive or negative aspects of traditional or complementary and alternative treatments.

Chapter 2

Method

Purpose: To determine through examination of previously conducted interviews if any of the eight postmenopausal women mentioned or implied a diagnosis of osteoporosis. If so, which form of treatment, being traditional or complementary and alternative was utilized. Exploration through the attitudes of each woman toward their health care to determine emerging themes through analysis of the lived experience the eight postmenopausal women with an increased risk or diagnosis of osteoporosis.

Research Questions

What were the perceived lived experiences of the eight postmenopausal women, with a focus on their health care?

What was the level of participation throughout their health care of the 8 postmenopausal women?

If used, was the use of complementary and alternative medicine perceived as being as more beneficial for these postmenopausal women with the risk of osteoporosis compared to those using traditional medicine?

Population and sample

In 2005, Evans and Bates conducted a quantitative study of 100 elderly women for a glimpse into their use of preventative breast self examinations and risk for breast cancer (Evans 2005a). The women lived in several assisted living communities throughout central Ohio. In a one year follow up, a qualitative study by Evans and Robertson was conducted where 20 women were sought out from the largest of the original assisted living communities (Thurber Villages)

for personal in-depth interviews (Evans 2009). Of the 20 women, eight women ages 75-91 participated in the interview process. IRB approval was obtained and 1-3 interviews were conducted concerning each woman's outlook and participation in their health care.

In this study, a secondary data analysis of the eight postmenopausal women was conducted through the data available as transcribed interviews. The eight women were not interviewed in the initial study for the purpose of looking into their health concerning osteoporosis or the use of complementary and alternative therapies specifically. Information was extracted through a qualitative analysis of the interviews to evaluate the lived experience of the women if diagnosed or alluded to osteoporosis. Analysis of the data occurred to explore pertinent themes related to each woman's health care.

Design

Qualitative research theory was utilized to obtain rich descriptions of the lived experiences of the eight postmenopausal women related to their perception of health and treatment to integrate previous research and existing concepts (Wolcott 2009). The research and analysis was embedded in the social contexts where the method was guided by observation through coding interviews (Coffey 1996). The themes and concepts of this study were formed through the researchers' perception of the respondents' view of their health care. This study paralleled the majority of qualitative research as it was derived from a small number of cases; contrasting quantitative research which compares statistical data sets from a large sample population with a small focus of interest. Therefore qualitative research provided the benefit of in-depth descriptions of the lived experiences of each participant (Glaser 1967).

Qualitative research was used through the stories and attitudes of each woman to provide possible reasoning behind why a treatment or health care options benefitted one woman while

offering no benefits for another. Document analysis was the method used to obtain research as a secondary data analysis. Grounded theory was employed to develop theories through the collection of data; applied to assess each participant as a whole, explore the variability of each lived experience, and examine the data to create theories (Glaser 1967). Coding, an aspect of grounded theory was used through analysis to categorize concepts discovered in the text to assemble a code tree (Appendix A Table 2-1). The process of coding created links between the two paradigms of perception to draw conclusions from the data. Through interpretation and reinterpretation of the data themes were formed to extrapolate information to form labels, concepts and interrelationships (Corbin 1990, Appendix A, Table 2-2). Concepts concerning each woman were created in order to form categories based on the theories created through coding. Patterns such as bringing a list to doctor visits were then found, eventually leading to a hypothesis being formed (Appendix A, Table 2-3). The use of 'theoretical notes' displayed by memos throughout the coding process provided clarification when a code was used in a specific circumstance warranting further explanation (Borgatti, 4).

Data and Instrumentation

Ethnograph, version 6, a qualitative data analysis software package was used to manage the data. A secondary data analysis of the eight postmenopausal women interviewed for their participation in breast self screening exercises was conducted. Each of the women was interviewed 1-3 times based upon the depth of information received and the interviews were uploaded into the qualitative coding system Ethnograph, version 6. Each interview was conducted by two members of the original research team (Evans 2009). The interviews were recorded by audio tape and transcribed for analysis of pertinent themes. Coding occurred with each interview where it was discovered that the women talked minimally about osteoporosis; and

even though this was the intended topic, useful information regarding each woman's health care was extracted. Through analysis it was found that only two women had been diagnosed or alluded to having osteoporosis, shifting the focus of the study from being 'a qualitative look into the treatment and prevention of osteoporosis' to 'a qualitative study of the health concerns of postmenopausal women.' The construction and revision of a code list (Appendix A, Table 2-4) was used to discover themes among the women concerning their health care experience with an association to osteoporosis and its' complications at times. Below is an example of coding used in an exchange between a participant and the interviewer.

> Participant: [And, you know, because of this older population, you know, people fall and break hips and stuff like this. My mom had osteoporosis and suffered severely. She never had much in the way of milk] *Osteo, Family hx*
> Interviewer: [Well, in those times it was probably hard to get, you would think…"]
> Participant: ["…and so she would have milk in her cereal and that's about all that she had. I do like milk and I drink a lot of milk and I take calcium] *Osteo, Diet, Calcium, Family hx*

Thematic clusters were explored to provide insight into the lived experiences of the eight postmenopausal women.

Chapter 3

Results

Demographics:

A total of eight postmenopausal women's interviews were included in construction of a secondary data analysis. A mean age of 83 years, with a median of 84.5 years, was found with an age range of 75-91 (Appendix A, Figure 3.1). Seven women were Caucasian and one of African American descent. All of the women were from the same assisted living community, Thurber Village in Columbus, Ohio.

Findings:

The transcripts were analyzed from the perspective of discussion related to the overall health of the women. From this perspective, further review occurred to determine how, when and why the women sought treatment and their feelings towards the treatment options. Through a secondary qualitative analysis, three main themes: support and sisterhood, compliance and participation, and attitudes toward personal health care and physicians were constructed concerning the health care, treatment and prevention used by the women interviewed. Support through a sisterhood formed within the community of the assisted living facility provided many of the women with guidance through their health care experiences and support through exercise classes from the instructor along with all the women who participated together. Compliance and participation in health care and exercise programs was evaluated based an increasing percentage of postmenopausal women in the United States with low bone mass and susceptibility for osteoporosis. Compliance was looked into concerning the dosing regimens, if traditional medications were used and participation throughout their health care process with a focus on

their use of exercise programs. Through the coding process, the attitudes of the women were analyzed based upon the finding of active roles but negative feelings of the women towards health care. Based on how the women portrayed their thoughts throughout the interviews and how the researcher perceived their message, analyzing of the overall lived experience of these women occurred to link the themes to key findings. With the development of themes, findings were analyzed from the perspective of four key questions.

1. What were the perceived lived experiences of the eight postmenopausal women, with a focus on their health care?

Through support:

As the women aged, they relied more upon themselves through their health care until they chose to live in an assisted living facility in attempt to find support and sisterhood created at Thurber Village.

Participant (age 76): Well, one of the reasons I moved here is because I don't have family.
Interviewer: Um-hm.
Participant: And if I got down that it would be helpful. I mean that could help. I have a couple first cousins but they're not in the Columbus area and I've been here six years now in this retirement community and we're so friendly, we're family.
Interviewer: Okay.
Participant: I mean, I'm closer to people here than I am with my blood relatives.

Through compliance and participation:

Three women spoke of the use of dual x-ray absorptiometry in testing for osteoporosis (Appendix A, Figure 3.2). Two of the women tested identified themselves to have osteoporosis, one with bone spurs and a hip fracture who spoke specifically of a diagnosis while the other alluded to it by talking about taking Fosamax, a traditional medication prescribed for osteoporosis (Appendix A, Figure 3.2).

Interviewer: Now, take me back to when you had your x-ray, was there any comments about, you know, you said you could see a difference between your right and your left hip on the actual –ray. Was there any comment about osteoporosis from the physician in reference to your x-rays?
Participant (age 76): He (the doctor) has said this was osteoporosis.

Participant (age 85): I take Fosamax.
Interviewer: Oh good, that's good. That Fosamax will help keep those bones hard for you
Participant: Well I drink milk too.
Interviewer: Did he recommend Fosamax to you? Cause, usually that medication's for someone who had osteoporosis.
Participant: Yes, well, I'd say I've been on that for 10, 15 years.

The other woman tested was not found to have osteoporosis. One of the women diagnosed with osteoporosis stated a maternal family history of osteoporosis and an additional woman who did not mention or allude to being diagnosed with osteoporosis also stated a maternal family history.

Participant with osteoporosis (age 76): And, you know because of this older population, you know, people fall and break hips. My mom had osteoporosis very severely.

Participant not alluding to having osteoporosis (age 82): And they, so you're talking about osteoporosis?
Interviewer: Yes
Participant: Cause my mother had osteoporosis, my mother had, was bent over, she had osteoporosis.
Interviewer: She did?
Participant: Yeah and so I was fearful of it.

The women presented with similar health concerns, many times were fears towards the health problems faced in their postmenopausal years.

Interviewer: And your mental outlook, how's your mental outlook?
Participant (age 82): Well, I'm fearful.
Participant: So, I guess you can't worry about all the possible things that you might get. You're gonna get something, but hopefully it won't be, hopefully it won't be this or the other.

One woman took Fosamax, a traditional medication given for women with osteoporosis. The other seven women were not currently taking any traditional medications for osteoporosis.

Two of the women stated the use of Tylenol for pains during movement. Five women used a form of exercise; two used yoga; two walked with the intent of exercise and two participated in general exercise classes (one also used yoga) provided by the assisted living community (Appendix A, Figure 3.3). The two women who sought out complementary and alternative treatment did so through the use of yoga as exercise. The two women with osteoporosis were of the five who engaged in exercise.

Interviewer: So you pretty much have your own regiment for exercise and you know what you need to be doing?
Participant (age 75): Yes and I take yoga now, I started yoga. This is my second…starting…yeah this is my second year…right. I started a year ago last fall.

Interviewer: Good, do you exercise?
Participant (age 86): Oh sure, I don't use the elevator in the buildings, I use the stairs.
Interviewer: Okay.
Participant: And my daughter lives here and we get together and we walk around Lake Antrium together.
Interviewer: Okay. Is there an exercise room here?
Participant: And I get on the bike here and attend to exercise class.
Interviewer: What days do you attend exercise class?
Participant: Maybe about three times a week at 10 o'clock in the morning.

Participant (age 84): I walk; I don't let anything stop me. I walk.
Interviewer: Okay.
Participant: And that's the one thing and the woman I walk with is 92. I got twice and she goes four ties.

Five out of the eight women spoke of actively consuming calcium to strengthen their bones (Appendix A, Figure 3.4). Two of the five women consumed calcium through calcium supplements (Viactiv and Caltrate). One woman age 82 stated "I do try to drink more milk, because they can tell."

Participant (age 76): I drink a lot of milk and I take calcium.
Interviewer: So you on your own decided you are going to increase your calcium?
Participant: Yes.
Interviewer: It wasn't like a physician's recommendation to do this?

Participant: No.

Participant (age 82): I have…cholesterol too high. So…but at least my bones seemingly were okay at that point.
Interviewer: Well that's good news. How are you with, you know calcium? Do you take a calcium supplement?
Participant: I've got all kinds of little problems. Since I have hemorrhoids, that doctor told me to not use milk or cheese. I'm using three stool softeners a day.
Interviewer: Aww.
Participant: Now and my doctor…She said how about fiber? You ought to have 35 grams of fiber, so I have been diligently getting my fiber and my everything's been working better since I got more fiber, but I'm still not drinking milk. I take Viactiv. In fact, I just took 600 of calcium…I've also taken Caltrate.

The women spoke of health problems ranging from cancer to cataracts. Five of the women spoke of surgeries such as a hysterectomy, knee surgery, hernia repair, a complete mastectomy, collar bone fixation, and a ruptured appendix. Two women discussed issues concerning breast cancer, one being diagnosed and the other finding breast cysts. One woman (age 86) stated concerning her health *"Uh, I would say I don't have any problems. Now I do take one medication, which is preventative and that's for my blood pressure."* She later reiterated through the answer *"Um, I don't know how to answer that question because I have nothing which to compare it because I don't have any medical problems."* One woman spoke of being overweight most of her life with many gastrointestinal medical problems such as colon cancer, gall stones, hemorrhoids, a hernia and high cholesterol. Another woman spoke of suffering from a heart attack. The woman who had a collar bone fixation also had a torn rotator cuff and was diagnosed with diabetes.

Through Attitude:

Of the two women with osteoporosis, the woman who stated the use of the traditional medication Fosamax (a bisphosphonate) also incorporated exercise and calcium.

Participant (age 85): I take Fosamax
Interviewer: Oh good, that's good. That Fosamax will help keep those bones hard for you

Participant: Well I drink milk too…
Participant: But I do go Monday, Wednesday, and Friday to the exercise classes here.
Interviewer: I've seen them.
Participant: We sit in a chair and we get weights. We go down; I go down three days a week for forty-five minutes of exercise.

The second woman with osteoporosis spoke of a preventative mindset towards her disease. She increased her calcium intake through diet with an incorporation of exercise aerobics. She was 76 with a maternal family history of osteoporosis.

Participant (age 76): Exercise, what do you call it…a consultant?
Interviewer: Oh, like a personal trainer.
Participant: So I have been doing exercises she recommended.
Interviewer: Right.
Participant: Three times a week for forty-five minutes, I do them when my schedule permits.

Participant (age 76): I drink a lot of milk and I talk calcium.
Interviewer: So you on your own decided you are going to increase your calcium?
Participant: Yes.
Interviewer: It wasn't like a physician's recommendation to do this?
Participant: No.

She had strong opinions towards her health care and as an active participant she researched osteoporosis on the internet in newsletters, as she was a member of the Arthritis foundation. She spoke of a strong disagreement with her doctor prescribing many medications as she felt that they would interact and not provide any positive benefits, just negative side effects.

Participant (age 76): So Advil interacts with my blood pressure medicine when taken at the same time and I'd been taking it at the same time.
Interviewer: Well you wouldn't think not to.
Participant: Yeah so uh…I'm scheduling it so I have some time between them so that maybe it wouldn't interfere.
Interviewer: You've made that decision on your own?
Participant: Oh yeah.

She hesitated at the approach many traditional doctors were taking to undergo surgery abruptly as she felt surgery would be rushed and her feelings about the situation would be ignored.

> *Participant (age 76): He said, well, when I can't stand the pain anymore, call and he would refer me to a surgeon.*
> *Interviewer: Oh…*
> *Participant: Well, I didn't like that approach, yeah, um… so this is my challenge for right now. I am about to ask the doctor for a referral. A friend from church had a hip replacement.*
> *Participant: That gave me the idea, okay, so if I do go see a surgeon, I don't want to have this as an automatic, well, we'll have surgery next Monday at eight o'clock or whatever…*
> *Interviewer: …How are you going to handle McShane (referred doctor) then? Are you going to call the office and see what they say? What's your next step to getting there?*
> *Participant (age 76): Well I'm not ready to rush to surgery.*
> *Interviewer: Right.*
> *Participant: Because I'm not in pain that much, much of the time. I've been talking to other residents here who have had hip replacements of whatever and I'm you know, they have a lot more pain than what I do and so if I can, I mean, I bought another report on pain management.*

She relied on her personal trainer, family and friends for advice through the process of dealing with the possibility of hip surgery as she felt they listened more to her feelings and provided more reliable insight. She felt that surgery was a last resort and incorporated exercise and calcium supplements in an attempt to prevent the need for surgery. She stated "Well, if you're positive I think you have a much better chance of survival."

> *Interviewer: Where did you get your take charge attitude towards health? If you didn't get it from your mom, what made you start taking charge of your situation and making your list and writing your letters?*
> *Participant (age 76): Well, I think, mostly because my background is information.*

2. What was the level of participation throughout their health care of the 8 postmenopausal women?

Through support:

As many of the women were active in their health care, some of them were more active than others of their generation with the aid of their sisterhood and support obtained from the assisted living community. The women were able to have support when going to doctor's visits, discuss the results of doctor's visits together and help each other through their medical problems.

Participant (age 82): You know, so, I guess that's one of the things about being alone, but there's a lot of people here that are alone and that's the good part of being in a place like this because there are people who care about you…
Participant: I don't want to go out and get in a cab and go to some doctor's office all by myself. It's just nice to take somebody along with you.
Interviewer: Well support.
Participant: Not a thing they can do but just, you know…
Interviewer: …An extra set of ears to hear, too.
Participant: Well once you get out of the cab you have to walk in, find a place all by yourself and if you don't walk around too. Well, you know, it's just nice to have that extra support.

Through compliance and participation:

The woman who used traditional medications for her osteoporosis had been using them between ten and fifteen years leading to an understanding of her compliance with treatment.

Interviewer: Did he recommend Fosamax to you? Cause, usually that medication's for someone who had osteoporosis.
Participant (age 85): Yes, well, I'd say I've been on that for 10, 15 years.

The five women who actively sought out an increase in calcium in their diet did so with intention and therefore participation in their health care. One of the women actively spoke of research concerning her health care.

Participant (76): I get a number of health magazines.
Interviewer: Oh do you.
Participant: I use the internet and newsletters.
Interviewer: Oh, great! Because you are interested yourself or what made you do that?
Participant: I am just interested.
Interviewer: That's good. So did you read something in there that made you think…more…about osteo?
Participant: Oh, yes, I read lots of articles on calcium.

Concerning their level of exercise, the women who used exercise in their prevention and treatment were very active in their health care. They engaged themselves with a desire to make a difference in their health care

Participant (age 84): I walk…I don't let anything stop me. I walk.
Interviewer: Okay.
Participant: And that's the one thing and the woman I walk with is 92. I go twice and she goes three times.

Through attitude:

When asked if they were considered to have a 'take charge attitude' at least four of the woman responded with positive feedback.

Participant (age 73): Well, if you're positive I think you will have a much better chance of survival.

Interviewer: So would you say that you have like a take charge attitude towards health? Like since you're taken care of?
Participant (age 86): Yes, yes very positive.

Participant (age 85): I am sort of a take charge person, I'm very aware.
Interviewer: Just trying to find out what your mental outlook is.
Participant: I think it's good and its better than average.

While one of the women had a different outlook on her situation, she had many medical problems such as interactions with traditional medicines that lead to her speaking more negatively of her situation.

Participant (age 82): My mental outlook…is that I'm a little skittish since they found I had colon cancer years ago and you don't even know you have anything. So now I'm having a little digestive problem and I talked to the doctor because I was concerned that it could be colon cancer going to some other kind of cancer in case they didn't get it all.
Participant: So, I guess you can't worry about all the possible things that you might get. You're gonna get something, but hopefully it won't be, hopefully it won't be this or that.

3. If used, was the use of complementary and alternative medicine perceived being as more beneficial for these postmenopausal women with the risk of osteoporosis compared to those using traditional medicine?

Five of the women incorporated exercise into their treatment and prevention of osteoporosis and its' risks. Yoga was used by two of the women interviewed.

Through support:

Even though two of the women used yoga, only one openly talked in depth about her use. She talked about her yoga instructor providing insight to gain the best results related to her health concerns.

Participant (age 75): She looks at all the individuals in the groups as they are working and she will tell certain ones that they…no don't do this one or do this modification of it rather than going all the way, you know.
Interviewer: So you feel like you got more attention from her like…or one on one even though it's a class exercise
Participant: And especially when…when I was a beginner. We were all beginners together and learning the same things together.

Through compliance and participation:

The woman who sought out traditional medications for osteoporosis also sought out the exercise and calcium supplements. She spoke of a belief that the traditional medicine alone would not treat osteoporosis.

Interviewer: So, what kind of things are going to be on your list for this new doctor? Just what kinds of things are you thinking you're going to be asking this person when you go to meet them?
Participant (age 76): Well, the um, I don't want to rush to surgery but I would like an honest evaluation if I can do anything that would stop the pain or whatever.
Interviewer: Without medicine?
Participant: Well, even with medicine.
Interviewer: Okay.
Participant: But, I mean…through my glucosamine and other things or is it just a done deal? When I, I get a whole bunch of articles and brochures again from this Arthritis Foundation and they don't, they say, you know, surgery isn't necessary.

The woman who actively talked of her use of yoga had been using it for a second year in her own exercise regiment linking to compliance with her choice of prevention.

Interviewer: So you pretty much have your own regiment for exercise and you know what you need to be doing?
Participant (age 75): Yes and I take yoga now, I started yoga. This is my second…starting…yeah this is my second year…right. I started a year ago last fall.

Through attitude:

It was interpreted that many of the eight women implied they were not happy with the care they received traditionally. One of the women 'loved' her doctor but the majority of the women thought their doctors were too busy to see them, and only asked the questions that were most important, believing the doctor would rather continue on with their busy day.

Participant (age 82): Not very often that somebody just sits and talks to me about all MY problems.
Participant: Well, I know…you know…the doctor has so many minutes so you talk about…you focus in on some real problem, not just all kinds of things like we're doing. I mean I wouldn't go on like this with…when I'm in a doctor's office.
Interviewer: Why wouldn't you?
Participant: Well he won't have an hour to sit and talk to you, they've got about ten minutes so you bring up the important things.

Participant (age 76): Well one thing, when you go in for appointment you have to wait so long.
Interviewer: Yeah.
Participant: And that aggravates me and I thought well, sure I could make an appointment and go in and ask him these questions, but why can't I do it with a letter and then I won't have to waste an hour or two waiting for him.
Interviewer: Well, and then you said he doesn't sometimes listen very well, right?
Participant: mhm

Later in the interview the same participant stated "*Oh I guess you can't expect the old family doctor that sits down and you know, with today's world. I guess he is really good at being a diagnosing doctor. He is supposed to be good at that."*

One woman was more concerned with taking up her doctor's time that she adjusted her medication instead of asking the doctor his opinion or for another option of medication.

> *Participant (76): Now, see I'm supposed to take that medicine in the morning and I was having trouble with it so I started taking at night and I just thought I'd be nice and let him know I was doing that in case wanted to change the medicine.*

Overall a statement by one of the women provides insight into the attitudes of the majority of women. She implied frustration as she was unable to obtain thorough answers to her questions.

> *Interviewer: So this is a long-standing relationship with this physician?*
> *Participant (76): Mhm, I don't know whether you call it a relationship or not.*
> *Interviewer: Oh okay, alright.*
> *Participant: He's the kind of doctor who walks in, how are you and then starts inching for the door.*

The woman who used yoga also stated she liked yoga for all of the aspects of it, including the benefit of the physical.

> *Interviewer: It's my understanding that yoga is more of a kind of like mental attitude and learning to quiet your inner self, but I've never do it, so…*
> *Participant(age 75): It's both, you know, you do get into the physical.*

4. Did any of the women who participated in complementary and alternative medicine find it easier to participate in?

Through support:

The woman (of the two that used yoga) who talked openly about its use spoke of group classes where they learned together. She also used videos for exercise but found that she did not use them often, especially since using a video on her own did not provide the sense of personal support she received in other activities such as her yoga classes. She also found support when a friend participated in yoga classes with her.

Participant (age 75): And especially when…when I was a beginner. We were all beginners together and learning the same things together
Interviewer: Right. So the whole class has kind of moved along together.
Participant: In the beginners class, yes. It's definitely; they all do the same thing in every beginners class.
Participant: I started with a gal who works here. I like the group cause I like to have a teacher there and if I can't do what she asks us to do, I can ask her what I can do or why I can't do it or whatever and that's really helpful. Cause you don't have that when you're by yourself. I do have several tapes and you'd think just for exercise…just for walking and stuff…and I thought when I bought them that I would use them more than I have.

Through compliance and participation:

The woman open about her experience in yoga talked of feeling she was not getting enough attention in other exercise classes and that she "loves" the yoga she is doing, especially because of the positive feelings it provided her.

Participant (75): I just feel that I didn't know what I was doing and I didn't get enough attention and then I found out about this place over on High street. It's called Yoga High. They have different levels of classes so I went into a beginner's class…but I love it, it's wonderful…I feel energized…I feel relaxed.

Through attitude:

The same woman was persistent with the use of yoga.

Interviewer: So you pretty much have your own regiment for exercise and you know what you need to be doing?
Participant (age 75): Yes and I take yoga now, I started yoga. This is my second…starting…yeah this is my second year…right. I started a year ago last fall.
Participant: I just felt that I didn't know what I was doing and I didn't get enough attention (in regular classes) and then I found out about this place over on High street. It's called Yoga High. They have different levels of classes so I went into a beginner's class…but I love it, it's wonderful…I feel energized…I feel relaxed

Discussion

When conducting a qualitative research study it is important to understand that the findings are not always in the form of numbers or statistics as qualitative research utilizes small sample sizes to provide rich in-depth information on the lived experiences of the subjects. The interviews used in this study were analyzed based upon the eight postmenopausal women's comments towards their health care. Analysis of the interviews found that many of the women inadvertently talked specifically about their health care concerning osteoporosis. Both traditional treatments and integrative CAM treatments for osteoporosis have benefits; the qualitative approach of this study was used to search for deeper insights into the lived experience of this small group of women. Throughout analysis, focus shifted from complementary and alternative treatments to integrative medicine. Complementary medicine refers to treatment in conjunction with traditional medicine and alternative medicine refers to treatment being used instead of traditional medicine. Integrative medicine refers to CAM treatments that have been researched and used in conjunction with traditional treatments. Through review of literature and analysis, the term integrative medicine was used in the findings of this study as many of the CAM treatments focused upon had been researched. Traditional medicine has been shown to provide positive benefits when compliance in high and along with the use of integrative medicine the benefits and results may greatly increase. With the aid of Figure 3.5 shown below, the themes of this study emerged from the interviews of these women which eventually lead to a hypothesis based upon the themes.

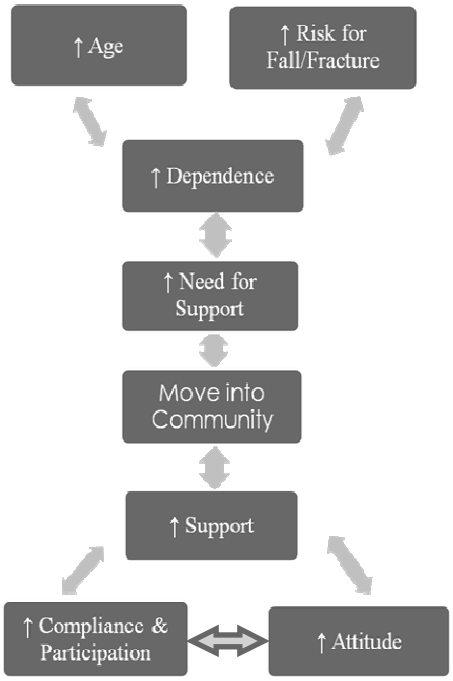

Figure 3.5 : Findings Through Analysis

All of the women were of postmenopausal years which lead to higher risks for osteoporosis and its complications (Cramer, 2007). As the women aged and their risk for fractures and falls increased, these women realized they had an increased dependence upon others throughout their daily living. Increased dependence leads to an increase in the need for support. Moving into the assisted living community provided the women with support; through the sisterhood created among the women and also from the opportunities provided through the community. The increase in support these women received led to an increase in compliance and participation in their personal health care and their daily lives. The support not only increased compliance and participation but also increased their personal attitudes. One woman mentioned the reasoning behind moving into the community was a decrease in support from her family, and the sisterhood created in the assisted living community, gave her that bonding that she lacked.

This strong support system aided the women through their personal journeys with health issues. The women of this community were able to provide support to each other in situations such as making sure those who did not have driving privileges could get to doctors appointments. The support "sister" could drive and attend the doctor visits as 'an extra set of ears.' The increased fear of falling led one of the women to decrease her exercise in order to stay at a lower mobility level. Her fear was that an increase in independence would result in injury, falling and a higher reliance upon others. As postmenopausal years continue to increase, decreases in health status and increases in health care concerns are expected. The women mentioned numerous health conditions from high blood pressure to fractures and hospitalizations, lending to an increased need for support.

Three main themes emerged throughout the analysis by linking key findings; support/sisterhood, compliance/participation, and attitudes. Support was provided through many avenues for these women. Sisterhood, within the assisted living community guided many of the women through their health care experiences, as well as instructors during exercise classes provided greater support and participation. Compliance and participation in their health care and exercise programs was evaluated for all eight of the postmenopausal women who had increasing health problems and desire to remain in control of their health. If the women were taking traditional medications, did they remain compliant through the process or were they willing to look into other avenues for integration or alternatives? If the women were using exercise to aid in their bone health were they more willing to participate, did the help of other women guide them through their experiences and how did the instructors positively impact their experience? With analysis of the first two themes, the attitudes of the women were related based upon the active roles but negative feelings of the eight postmenopausal women towards their health care. The

three themes emerged together as each impacted the others through the lived experiences of these women. The three themes interrelated; increases in attitudes led to increased support, which lead to an increase in participation that could increase bone health while decreasing management of risks for osteoporosis leading to an increase in attitudes among these women (Appendix A, Figure 3.7). A decrease in the need for management of risks for osteoporosis will in turn provide an increase in independence, health and happiness; which will increase the overall quality of life for these postmenopausal women.

The importance of a strong support system to these postmenopausal women lies in the fact that one cannot stop aging and osteoporosis is a disease associated with aging. An estimated population of 44 million Americans is at risk, 80% being women (Lewiecki, 2008; Nat Osteo, 2008). The women's fear of losing their independence leads to decreased participation in preventative health care. Support can come from the sisterhood created among the women as well as support provided by the assisted living community. Throughout the coding process, the term 'support' was used to link any occasion to women talked about support; whether from family or their doctor, as it pertained to their health. As shown in Figure 2.3 of Appendix A, support desired by the woman is considered one link between traditional and integrative CAM treatments. Regardless of the avenue each woman chose for their health care, they all wanted a support system throughout the health care process. As previous support systems from family, close friends and previous doctors declined, the women moved into the assisted living community. Besides one woman who 'loved' her doctor, the women struggled to make connections they once had with previous generations of doctors. Frustration and decreased quality of care led one woman to stop asking questions during doctor visits and lead another to adjust medication dosage herself. With an age range of 75-91, the women have experienced long

lives and subsequently many medical experiences. These women knew what care they wanted and how they wanted to receive it. Unfortunately, many times they were hesitant to 'get in the way' or 'interrupt the doctors busy day' they did not receive the best care.

A support system is important to postmenopausal women as they sense a loss of independence. This can lead to an increase in compliance and participation throughout their health care. In the analyzing the data, terms such as *DXA*, *testing*, *exercise* and *list to doctor* to find links between the women. A code such as 'list to doctor' was used any time the women spoke of making a list or taking a list to a doctor, as they had active participation in their health care. The code 'exercise' was used anytime the women generally talked about something relating to exercise and then later broken into more specific codes such as Pilates. The use of these codes lead to the emerging theme of the women regarding their compliance and participation. Compliance was used as a designation regarding the women following guidelines or suggestions for treatment and when they were using traditional or integrative CAM treatments. Participation was explored to find whether the women were willing to integrate the use exercise classes, if the women played an active role in their health care and which avenues the women chose for their treatment and health concerns.

One of the women who used the bisphosphonate, Fosamax stated she had been using the medication between ten and fifteen years and with such a long stretch of time one could interpret a compliance with treatment. Strict guidelines for dosing provided the possibility that some of the postmenopausal women in the study may have once tried traditional treatment and discontinued. The woman taking Fosamax integrated exercise and calcium; she talked of milk consumption in her diet specifically for the calcium content and using the exercise classes in her living facility. Five of the eight actively sought out calcium through diet or supplements as this is

an important contribution to their bone health (Lane, 1999; Diez, 2002). Analysis of the data on five women who used calcium, indicated that they sensed a loss in bone health due to aging. A daily fear of falling and dependence upon others has created compliance to treatment and increased participation in many avenues of care. The U.S. Surgeon General recommends a "minimum of 30 minutes of physical activity on most, if not all days of the week" (Lewiecki, 2008).

An increase in compliance and participation throughout health care and the use of integrative exercise classes is important for these women to continue independently through the second half of their lives. The U.S. Surgeon General recommends a foundation for lifestyle changes, including nutrition, physical activity and fall prevention which brought exercise and calcium intake to the forefront for all women (Lewiecki, 2008). Exercise classes such as yoga in which two of the women used parallels the recommendations made for lifestyle changes. One woman stated that exercise positively impacted her health due to support from the instructor and the other participating women. This woman talked of how her instructor provided one on one attention to ensure the poses were beneficial. The ability of the instructor to manipulate of yogic poses into forms such as poses for osteoporotic patients can be useful as some of the women did not want to participate for fear of hurting themselves.

Regardless of whether any of the women spoke of a specific diagnosis with osteoporosis, the fact that 5 of the women were actively seeking out exercise (two using the integration of yoga), including the one woman using traditional medication lead to insight into the attitude of these women towards their health care. The take-charge attitudes of many of the women lead them to have mental outlooks that one woman considered "better than average." The women had strong active participatory roles in their health care, but negative attitudes towards many aspects

of traditional treatments. The attitudes of the women were explored based upon the idea that a take-charge attitude towards their health care lead to an increase in support and an increase in compliance and participation which will lead to a better attitude and more informed choices towards personal health care. Through the coding process, terms such as 'attitude' and more specifically 'positive attitude' were used to look into the times when the women mentioned or alluded to opinions or emotions towards their health care.

With research finding approximately 50% of patients with hip fractures will never walk without assistance, 25% will require long term care, and a high mortality rate the 76 year old woman with a hip fracture had reason to not rush into surgery (Lewiecki, 2008). It is also not uncommon for a woman of their age range to have a hip fracture as women over 80 contribute to more than 60% of osteoporotic hip fractures (Seeman, 2006). This woman was adamant in her search for the best solution; her take charge attitude led her to become an active member in her health care. She stated many times throughout her interviews that surgery was to be her last option and if it was to be the only option she wanted to make sure she was very informed. She relied on her personal trainer, family and women from her community for advice through the process. When dealing with the possibility of hip surgery, she felt they listened more to her feelings and provided more reliable insight. The active participation she had in her health care lead her to make more informed decisions and understand the need for the integration of exercise. She had the attitude of many who actively seek out complementary and alternative therapies as she stated "Well, if you're positive I think you have a much better chance of survival." Through the choices of traditional treatments, CAM treatments, or an integration of the both, the women were able to think more positively about the decisions they were making

concerning their health care. A positive attitude through all of these lived experiences can in turn lead to better quality of life for these women.

Through take charge attitudes, support, sisterhood, compliance and participation the woman developed positive attitudes in the decision-making process of their health care. Instead of believing they were taking too much of the doctor's time the informed women can ask all the questions they have to obtain the best quality care. With active participation in researching all the options available, the women are able to choose the best treatment for them, while understanding all the options. Compliance with traditional treatments for osteoporosis is low, the desire for support and a positive outlook is high and these women are interested in finding the best treatment for them. Qualitative looks into the lived experiences of these eight women provided insight into the personal stories and situations that lead each of the women to their choices for care. The themes created reflect the important concepts of their health care that the women portrayed through the interviews to find that integrating exercise classes will increase their independence and attitude, leading to an overall increase in quality of life.

Limitations

Only two of the eight women confirmed or implied having osteoporosis which is a smaller percentage than the 27% of women over 80 which were diagnosed osteopenic and 70% osteoporotic (Cramer, 2007) If these statistics are accurate, it can be that at least half of the eight women would have been diagnosed with osteoporosis or low bone mass. However, three women spoke about being tested for osteoporosis which correlates to many studies which found most women are not being tested (Ray, 1997; Seeman, 2006; Mauck, 2006). The possibility the other five women had not been tested and therefore did not know they had low bone mineral density or

osteoporosis. The original interviews were not conducted to investigate osteoporosis; however insights could be gained from the responses given about their general health. Two studies conducted previously found many times women were not being tested for osteoporosis and therefore had no insight into a diagnosis of decreased bone density or osteoporosis (Ray, 1997; Seeman, 2006). In the largest study of osteoporosis conducted in the United States among 200,160 participants it was found that half of the women without known osteoporosis had low bone mineral density and 7% of those not knowing they also had osteoporosis (Siris, 2001).

Many of the interviews were conducted openly which inadvertently provided links between each woman's health care, their attitudes towards osteoporosis and their choices of prevention and treatment. Even though Tai Chi was the most widely researched CAM therapy for osteoporosis, none of the woman in this study spoke of its use. The women interviewed were chosen from the same assisted living community, volunteered their participation, and were not representative of their generation as they were of high socioeconomic and intellectual status. The lack of racial diversity also limits generalizability as seven out of eight of the women were Caucasian and one African American. This created a bias as each of the women had opportunities available to them, some being integrative, complementary, and alternative therapies that women who do not have access to assisted living communities miss. Complementary and alternative treatments have not been widely researched leading many women to find these options through other resources such as friends, family or an acquaintance.

Conclusion

Through analysis of interviews with eight postmenopausal women the three common themes of attitude, support and compliance and participation were found to be interwoven as they linked together (Appendix A, Figure 3.7). An increase in age along with an increase in the risk and fear of falls or fractures leads many postmenopausal women to an increase in dependence on others throughout daily living. An increase in the dependence upon others lends to an increase in need for support, resulting in many women moving into assisted living communities. Through sisterhood created in the assisted living community and integration of exercise classes, an increase in support and an increase in compliance/participation led to an increase in positive attitudes (Appendix A, Figure 3.5). The support from the women in the assisted living center can be aided by CAM and integrative exercise regimens as they provide increases in bone mineral density while providing the opportunity for support among the participating women and from the instructors.

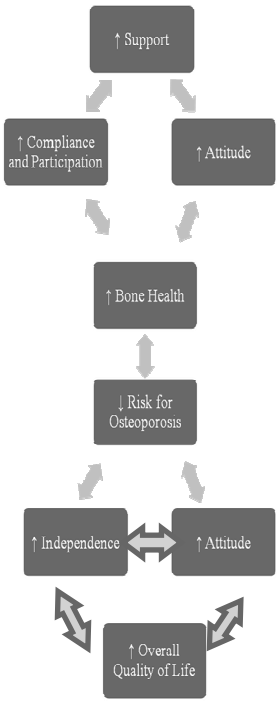

Figure 3.6 Results Based upon Themes

Many postmenopausal women are looking for a strong support system and the addition of group exercise programs may provide the missing link to the most supportive health care possible. Integrating exercises classes into the lives of postmenopausal women can increase quality of life while maintaining the risks for osteoporosis (Appendix A, Figure 3.7). An increase in bone health as the women become more active in their health care can lead to a decrease fear of falling and concern for osteoporosis. A resulting increase in independence and attitude in conjunction with a decreased fear and risk of falling can provide postmenopausal women with an increased overall quality of life (Appendix A, Figure 3.6). Integrative CAM exercises such as yoga and Tai Chi can be the pathway to an increased quality of life (Appendix A, Figure 3.8).

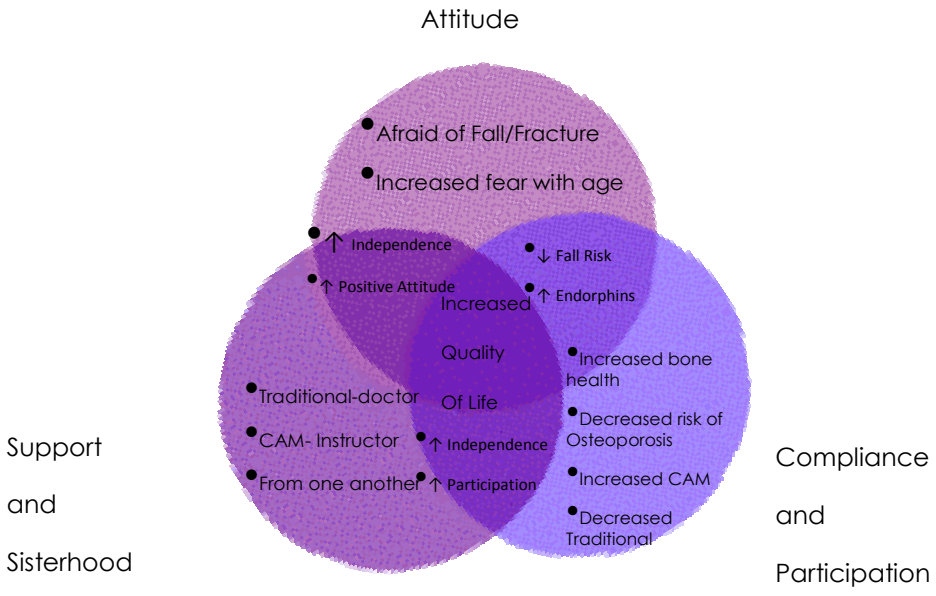

Figure 3.7 : Conclusions Based on Findings and Themes

Osteoporosis is a complicated disease with psychological and social consequences which provides opportunities for integration of holistic treatments (Lewiecki, 2008). Traditional

medicine tends to focus on the disease and not the patient, while integrative CAM tends to look at the patient holistically, not just the disease. Based on this small group of women and the themes found, further research into the integration of walking, yoga, or tai chi classes could be explored concerning the benefits for postmenopausal women. Tai Chi and yoga can directly reduce the risk of falls with an increase in daily activity and attitude (Wayne, 2007). Many postmenopausal women in assisted living facilities strive for enjoyable and validating years as their time decreases and health issues increase. A walking class would provide the woman with low impact weight bearing exercise and expand their sisterhood of support through participation with other woman in their community. In one prospective study of 9515 osteoporotic women over 65, out of 192 hip fractures those who walked for exercise had a 30% reduction in relative risk for fractures (Prior, 1996).

Further research such as a qualitative study to learn more of the lived experiences of women with osteoporosis, with focus on those using integrative CAM treatment is warranted. The information gained from this qualitative study could be used to develop a more in-depth questionnaire to be used for a larger quantitative study comparing traditional and integrative CAM treatments concerning fracture risk, falls and bone mineral density for women. With positive attitudes supported through sisterhood, compliance and participation aided by the instructors and other participating women, walking or group exercises classes can be explored through further research for greater insight into the impact of osteoporosis on postmenopausal women. The use of group exercises classes such as yoga incorporated into the health care of these postmenopausal women can aid in bone formation and decrease the risk of falls or fractures leading to a happier, more independent quality of life.

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Appendix A: Data

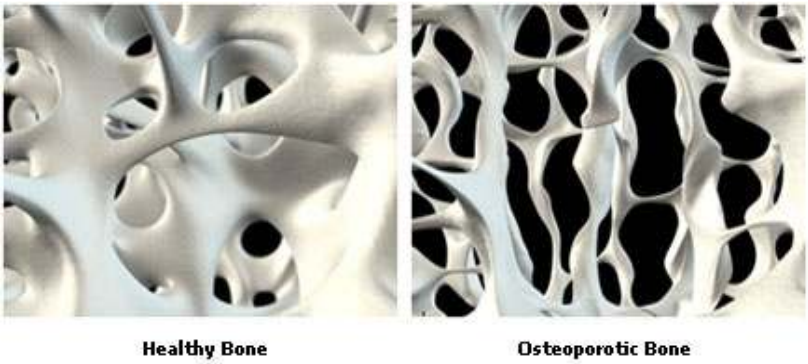

Figure 1.1 : A Comparison of health bone matrix to that of osteoporotic bone

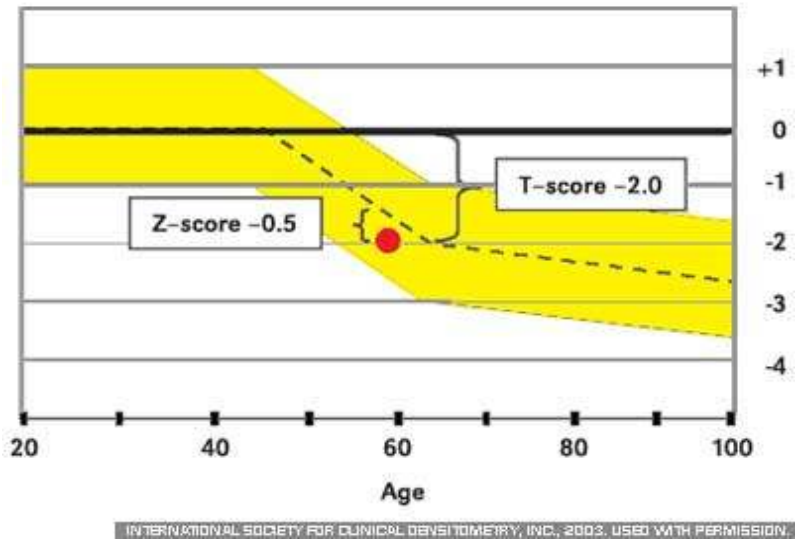

Table 1.1 : A typical printout of T and Z score ranges given to patients'

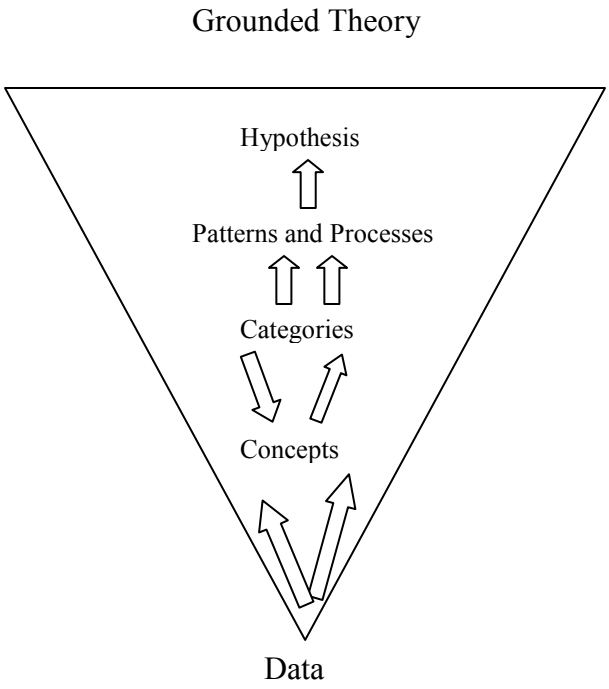

Figure 2.2 : Corbin and Strauss's Specific Procedures for Data Collection and Analysis

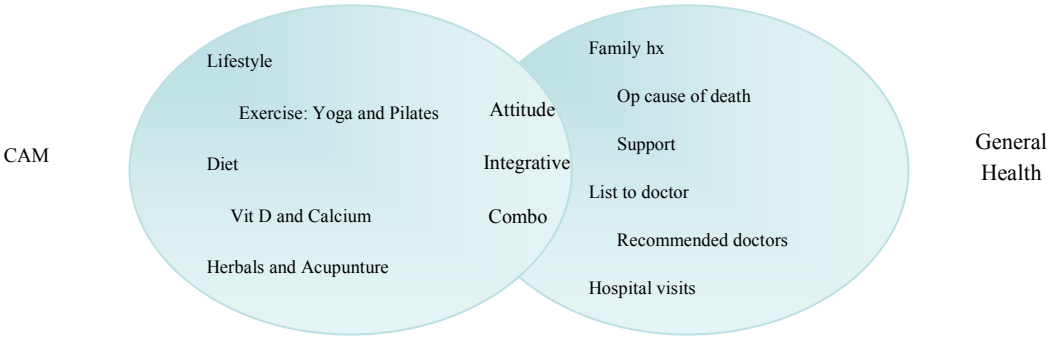

Figure 2.3 : Comparison of links between complementary and alternative treatments and traditional treatments

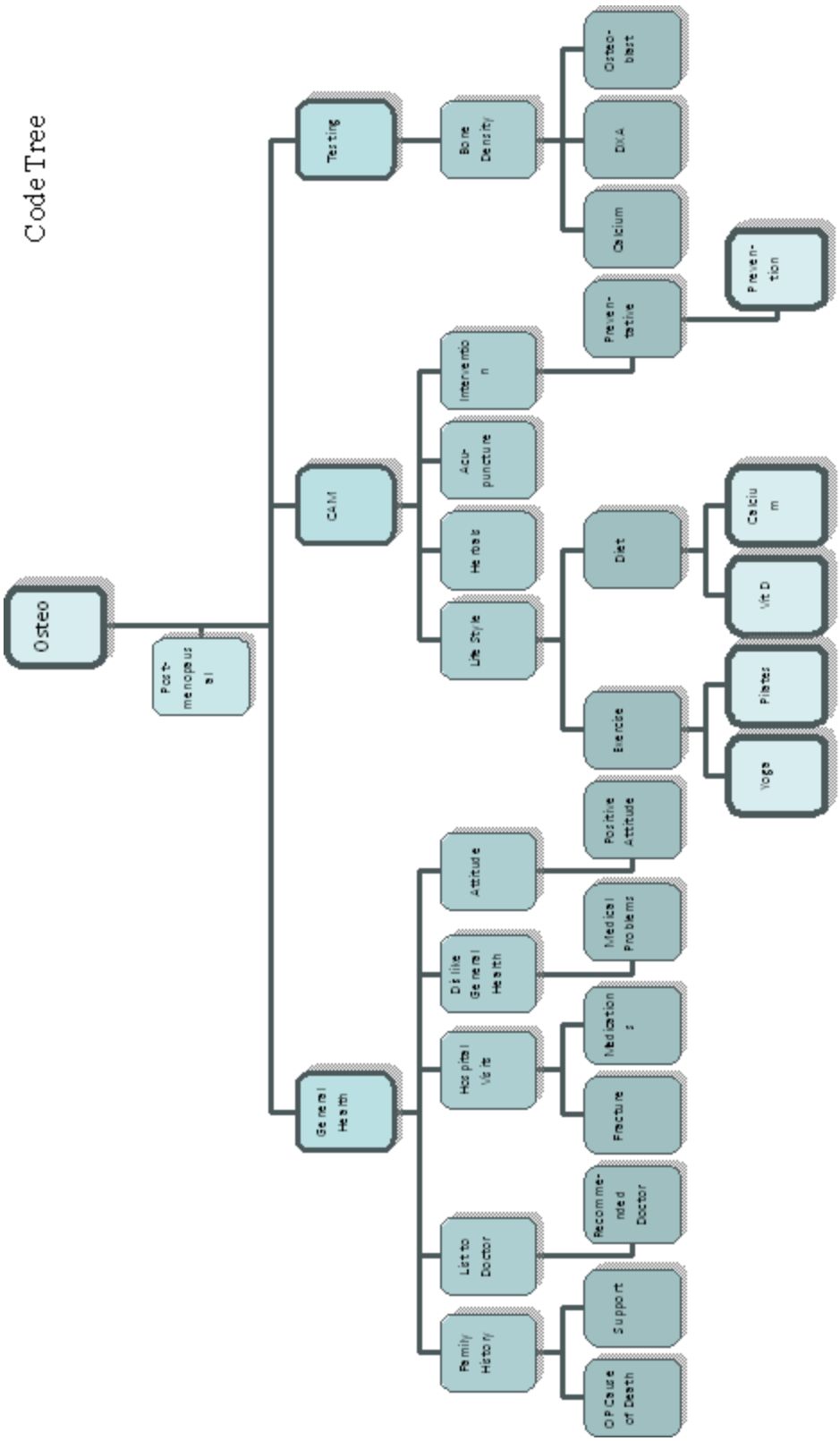

Figure 2.1 : Code tree created to relate the topics formed through the process of coding.

Table 2.1 : Code List

CODE	Definitions
ACUPUNCTURE	Use as an alternative therapy in the treatment of osteoporosis
ATTITUDE	Participants ideas towards specific treatments and interventions
BONE DENSITY	Talk of one's bone density
CALCIUM	The use of calcium supplements by participants
CAM	Broad range of complementary and alternative medicines
COMBO	Linking traditional and alternative medicine
DIET	Participants altering diet based on recommendations by friends or doctors
DISLIKE GEN HEALTH	Participants comments negatively towards interaction with general health
DXA	Use of Dual x-ray absorptiometry in testing for osteoporosis
EXERCISE	Participants use of exercise as possible alternative therapy
FAMILY HX	Participants family medical history contribution to ideals on osteoporosis
FX	Any participant who had a fracture, possibly linked to osteoporosis
GENERAL HEALTH	General comments about physical or mental health
HERBALS	Use of herbals as alternative therapy in treatment of osteoporosis
HOSPITAL VISIT	Participants who visited hospital because of osteoporosis
INTEGRATIVE	Use of traditional and alternative therapy with osteoporosis
INTERVENTION	Link between what doctor told patient and what patient was to do
LIFESTYLE	Part of life of the participants that contributes to osteoporosis
LIST TO DOCTOR	Participants who took a list of concerns to their doctor
MEDICAL PROB	Any medical problem each woman has
MEDICATIONS	General comments about medications taken by participants
MEMO	Link comments to the codes provided
OP CAUSE OF DEATH	Any participant relating a comment to osteoporosis as the cause of a death
OSTEO	Osteoporosis; this code is used when the word osteoporosis is brought up
OSTEOBLAST	Code used when terms osteoblast/osteoclast is stated in conversation
PILATES	Use of Pilates as an alternative therapy in the treatment of osteoporosis
POSITIVE ATTITUDE	Looking positively into aspects of health and treatment of osteoporosis
POSTMENOPAUSAL	Any time postmenopausal women were brought up in conversation
PREVENTATIVE	Any preventative medication being taken
PREVENTION	Anything a participant used as possible prevention for osteoporosis
RECOMMENDED DOC	Any recommendation received by participant
SUPPORT	Any family or other form of support through medical care
TESTING	Any type of medical testing; especially that of osteoporosis; including DXA
VIT D	Use of vitamin D in the treatment of osteoporosis
YOGA	Use of yoga as an alternative therapy in the treatment of osteoporosis

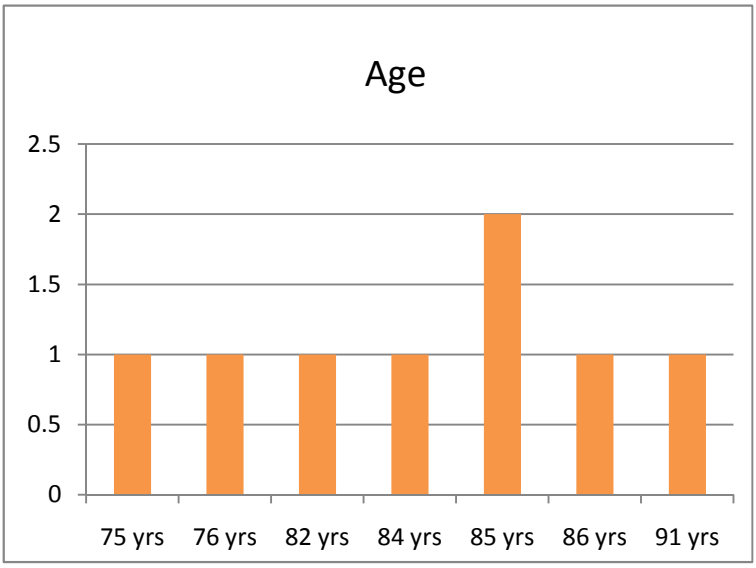

Figure 3.1 : Correlation between the number of women studied and their age at the time of interviewing.

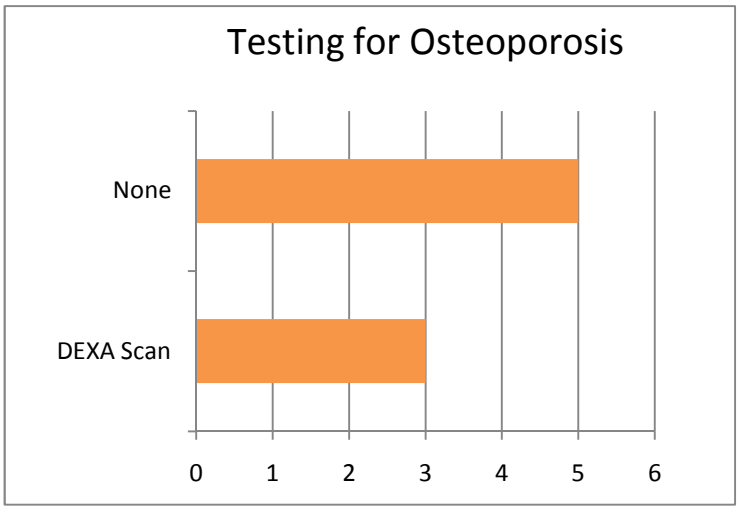

Figure 3.2 : Comparison of the number of women tested for osteoporosis compared to those never tested.

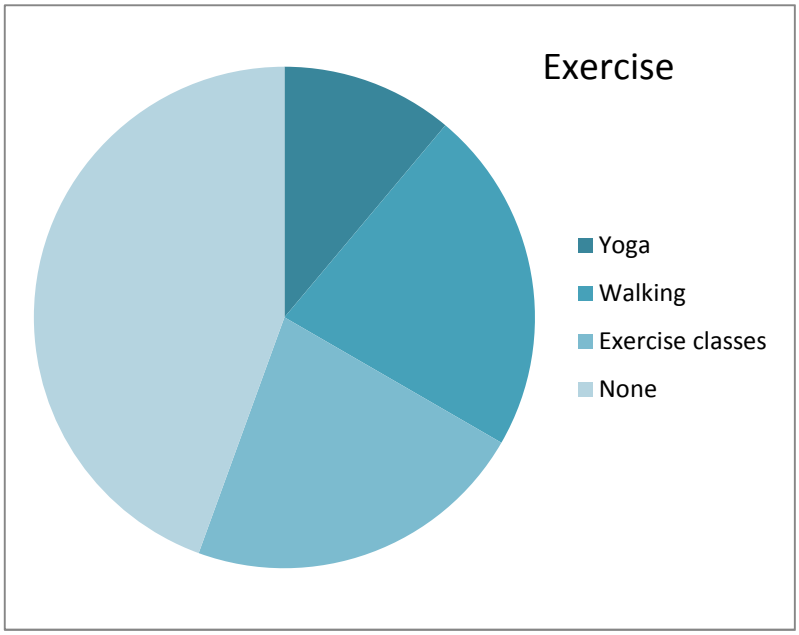

Figure 3.3 : Graphical comparison of exercise use of the eight postmenopausal women.

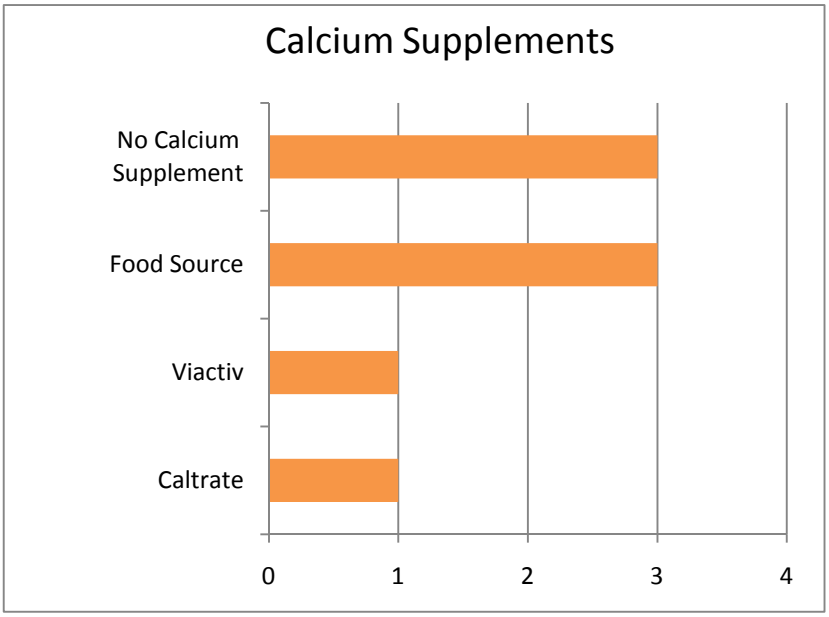

Figure 3.4 : Graphical comparison of the eight postmenopausal women's incorporation or exclusion of calcium.

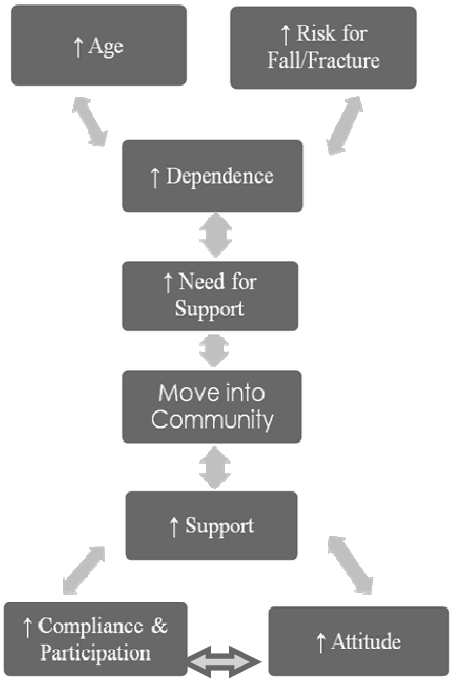

Figure 3.5 : Findings through analysis

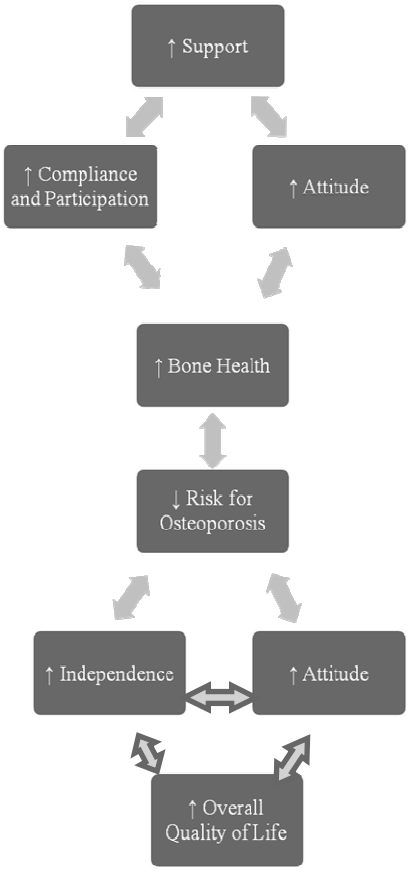

Figure 3.6 : Results based upon themes

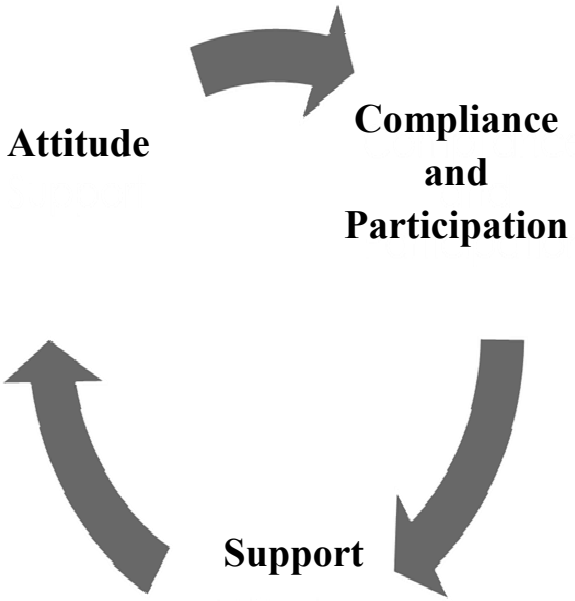

Figure 3.7 : Interconnection between themes

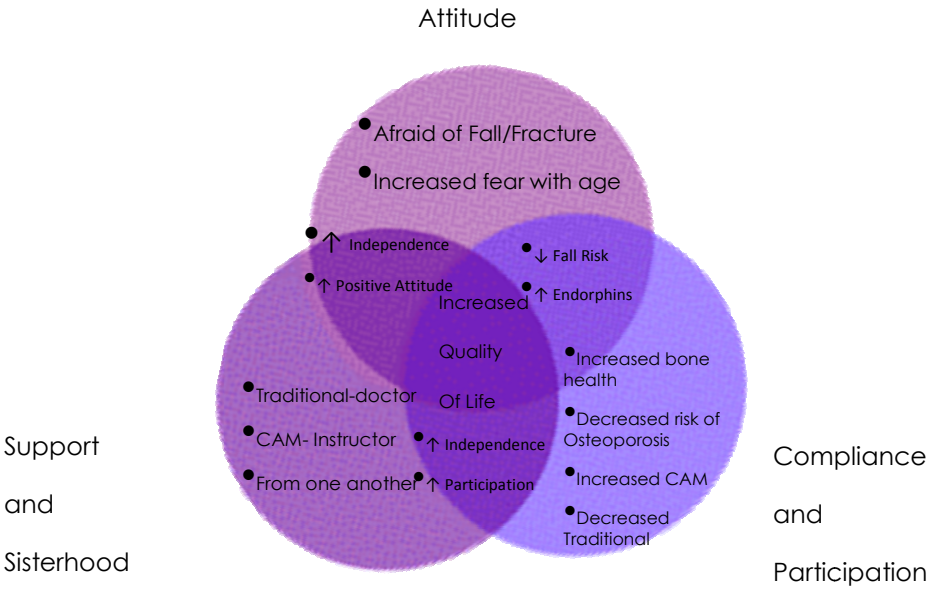

Figure 3.8 : Conclusions Based on Findings and Themes